IN THE SPECIFICATION

Page 1, line 15, delete the paragraph and heading inserted there via the Preliminary Amendment submitted 24 June 2003 and, in place of that paragraph and heading, as a new paragraph with a centered heading insert:

CROSS REFERENCE TO RELATED APPLICATION

This is a division of U.S. patent application 09/210,085, filed 11 December 1998, now U.S. Patent 6,617,772 B1.

Page 18, amend the paragraph beginning at line 10 as follows:

Wall electrodes 48, 50, and 52 cooperate with the electron-focusing system in controlling the movement of electrons from backplate structure 20 through sealed enclosure 26 to faceplate structure 22. Further examples of how spacer wall electrodes, such as electrodes 48, 50, and 52, function to control the forward electron movement are presented in Spindt et al, U.S. patent application 09/008,129, filed 16 January 1998, now U.S. Patent 6,049,165, and Spindt et al, ~~et al~~ U.S. patent application ~~Ser. No.~~ 09/053,247, filed 31 March 1998, now U.S. Patent 6,107,731. ~~1998.~~ The contents of applications ~~Ser. Nos.~~ 09/008,129 and 09/053,247 are incorporated by reference herein. Alternative implementations for electrodes 48, 50, and 52 are also presented in applications ~~Ser. Nos.~~ 09/008,129 and 09/053,247.

Page 21, amend the paragraph beginning at line 4 as follows:

Main wall 46 normally has a porosity of at least 10% along each of wall faces 54 and 56. The minimum main wall facial porosity of 10% applies to pores 60, 62, and 64 and to other implementations of pores along face 54 or 56. The main wall porosity along face 54 or 56 is preferably at least 20%, more preferably at least 40%. The main wall facial porosity is typically 60% or ~~more~~ more, often up to 80% or more. In some embodiments, especially when main wall 46 contains irregular pores such as pores 64 in Fig. 3c, the main wall porosity along face 54 or 56 can reach 90% or more.

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Page 28, amend the paragraph beginning at line 1 as follows:

Trenches 80 are depicted as being largely identical in the example of Figs. ~~Fig.~~ 3h and 4d. Again similar to notches 74, trenches 80 can vary in shape from one to the other. Specifically, trenches 80 can extend to different depths into main wall 46 or/and be of different widths. Although each trench 80 extends fully across the portion of main wall 46 depicted in Fig. 4d, each trench 80 need not extend fully across the dimension of wall 46 perpendicular to the plane of Fig. 3h. For example, two or more laterally separated trenches can replace a trench 80 that extends fully across wall 46.

Page 29, amend the paragraph beginning at line 23 as follows:

As the average width of ridges 82 increases relative to the average spacing between consecutive ones of ridges 82 in the example of Figs. 3i and 4e, the ridged spacer-wall structure transforms into the trenched structure of Figs. 3h and 4d. This transformation is considered to occur when the average ridge width equals the average ridge-to-ridge spacing. In light of this, the porosity along wall face 54 in Figs. 3i and 4e normally has ~~is normally~~ a minimum in the vicinity of 50%. The main wall facial porosity in Figs. 3i and 4e is readily adjusted to 60% or more up to at least 80% or more and even up to at least 90%. The main wall porosity along face 54 is determined according to the first-mentioned or second-mentioned approach described above with the spaces between ridges 82 being viewed as openings for determining the spacer facial porosity.

Page 55, amend the paragraph beginning at line 20 as follows:

The roughness in faces 54 and 56 of layers 134 and 136 can be achieved in various ways, including all the ways shown in Figs. 3a - 3l and 4a - 4g. Each of rough layers 134 and 136 is typically a porous layer in which the facial roughness is implemented primarily with pores such as those shown in Fig. 3a and 4a, 3b, and 3c or/and with pore-like depressions such as three-dimensionally rounded recessions 66 of Figs. 3d and 4b. The pores or/and pore-like depressions typically largely penetrate through each of layers 134 and 136, especially in the case of irregular pores ~~pore~~ 64 in Fig. 3c or rounded pore-like recessions 66

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in Figs. 3d and 4b. In any event, layers 134 and 136 each have the facial porosity characteristics described above for wall face 54.

Page 57, amend the paragraph beginning at line 8 as follows:

Each of rough layers 134 and 136 is normally no more than 20 μm thick. The minimum thickness of layer 134 or 136 is normally 20 nm. The average thickness of each of layers 134 and 136 is normally 20 ~~10~~ - 1,000 nm, preferably 20 - 500 nm. These thickness specifications, along with the preceding specifications on sheet resistance, resistance, resistance per unit length, and electrical resistivity, apply especially to the situation in which layers 134 and 136 are porous layers.

Page 58, amend the paragraph beginning at line 11 as follows:

Particularly attractive oxide and hydroxide candidates for rough layers 134 and 136 are those of carbon, aluminum, silicon, titanium, vanadium, chromium, manganese, iron, yttrium, niobium, molybdenum, lanthanum, cerium, praseodymium, neodymium, europium, and tungsten, including mixed oxide and/or hydroxide of two or more of these elements. In an example described further below in connection with Figs. 16a - 16c, ~~16d,~~ layers 134 and 136 consist of porous metal oxide formed by anodically oxidizing metal such as aluminum. In another example, layers 134 and 136 are porous layers consisting largely of oxide of one or more of aluminum, silicon, titanium, chromium, manganese, iron, and neodymium. Other particularly attractive candidates for layers 134 and 136 are boron carbide, boron nitride, aluminum nitride, and silicon nitride.

Between pages 65 and 67, insert page 66, copy enclosed, as follows where the last sentence on page 66 is continued on page 67:

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The patterned face-electrode layer is typically formed by depositing a blanket layer of the desired face-electrode material and selectively removing undesired parts of the face-electrode material using a suitable mask to prevent the face-electrode material from being removed at the intended locations for the face electrodes. Alternatively, the patterned

face-electrode layer can be selectively deposited using, for example, a shadow mask to prevent the face-electrode material from accumulating at undesired locations. When the patterned face-electrode material overlies one of conformal coatings 138 and 140 and/or one of rough layers 134 and 136, use of this alternative avoids possible contamination of rough faces 54 and 56 with material used in forming the face electrodes.

Other modifications can be made to the foregoing spacer fabrication process. For example, the support structure can be eliminated. End electrodes 50 and 52 can be formed in different ways than described above. Instead of cutting the precursor substrate into core substrates 132 and then using a shadow mask to prevent the end-electrode material from being deposited on the side edges of substrates 132, the precursor substrate and overlying material can be cut into strips that each contain a row (or column) of substrates 132 arranged side edge to side edge. After the end-electrode material is deposited, the strips are then cut into segments that each contain one substrate 132. In some cases, the formation of end electrodes 50 and 52 and/or the formation of face electrodes such as face electrodes 48 can be eliminated. The spacer fabrication process is then simplified accordingly.

All of the steps involved in the formation of the patterned face-electrode material, end electrodes 50 and 52, rough layers 134 and 136, and conformal

Page 67, amend the paragraph beginning at line 14 as follows:

Figs. 13a - 13d (collectively "Fig. 13"), Figs. 14a - 14e (collectively "Fig. 14"), Figs. 15a - 15f (collectively "Fig. 15"), Figs. 16a - 16c (collectively "Fig. 16"), and Figs. 17a - 17d (collectively "Fig. 17") illustrate process sequences for respectively manufacturing five variations of main spacer wall 46 according to the invention. The roughness in wall 46 is produced by depressions in the process sequences of Figs. 13 - 17. When fabricated according to the process sequence of Fig 13, wall 46 appears generally as shown in Fig. 3c and either Fig. 11b or Fig. 11d. Upon being fabricated according to the process sequence of Fig. 14 or 15, wall 46 appears generally as shown in Figs. 3d and 4b and either Fig. 11b or Fig. 11d. When fabricated according to the process sequence of Fig. 16, wall 46 appears generally as shown in Fig. 3f and one of Figs. 11a - 11d. Upon being fabricated according to the process sequence of Fig. 17, ~~Figs. 16,~~ wall 46 appears generally as shown in Figs. 3a and 4a and either Fig. 11b or Fig. 11d.

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Page 67, amend the paragraph beginning at line 35 as follows:

Figs. 18a - 18e (collectively "Fig. 18") ~~"Fig. 18)~~ illustrate a process sequence for manufacturing a sixth variation of main wall 46 according to the invention. Figs. 19a and 19b (collectively "Fig. 19") depict steps that can alternatively be performed on the structure of Fig. 18d to produce wall 46 according to the invention. Figs. 20a - 20c (collectively "Fig. 20") illustrate a process sequence for manufacturing a seventh variation of wall 46 according to the invention. The roughness in wall 46 is produced by protuberances in the process sequences of Figs. 18 - 20. When fabricated according to the process sequence of Fig. 18, including the alternative of Fig. 19, wall 46 appears generally as shown in Figs. 3k and 4g and either Fig. 11b or Fig. 11d. Upon being fabricated according to the process sequence of Fig. 20, wall 46 appears generally as shown in Fig. ~~Figs.~~ 3l and either Fig. 11b or Fig. 11d. The manufacturing steps illustrated in Figs. 13 - 20 are appropriately employed in the above-described process and process variations for fabricating spacer walls 24.

Page 71, amend the paragraph beginning at line 34 as follows:

The gels or liquid-filled open solid networks are created from a ceramic polymeric precursor or from ceramic particles. Thin-film solid composites 150 and 152 in this procedure can be generally formed according to the porous-ceramic preparation techniques described in Saggio-Woyansky et al, "Processing of Porous Ceramics," *Technology,* ~~Technology,~~ Nov. 1992, pages 1674 - 1682, or the sol-gel techniques described in Hench et al, "The Sol-Gel Process," *Chem. Rev.*, ~~Chem. Rev.,~~ Vol. 90, ~~Vol.,~~ No. 1, pages 33 - 72, and Brinker et al, "Sol-Gel Thin Film Formation," *J. Cer. Soc. Japan, Cent. Mem. Iss.*, ~~J. Cer. Soc. Japan, Cent. Mem. Iss.,~~ Vol. 99, No. 10, 1991, pages 862 - 877. The contents of Saggio-Woyansky et al, Hench et al, and Brinker et al are incorporated by reference herein.

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Page 72, amend the paragraph beginning at line 12 as follows:

When composites 150 and 152 are polymeric gels, the support material in the gels typically consists ~~consist~~ of polymerized alkoxide. The ceramic cations in the gels are

typically silicon and/or one or more other non-carbon elements in Groups 3b, 4b, 5b, 6b, 7b, 8, 1b, 2b, 3a, and 4a of Periods 2 - 6 of the Periodic Table, including the lanthanides. At least part of the liquid in each gel is typically a byproduct of the gel processing.

Page 74, amend the paragraph beginning at line 1 as follows:

A liquidous composition, or slurry, is prepared from a liquid, particles of a support material, and further particles of different chemical composition than the support material. The chemical nature of the support material is normally chosen such that, in final spacer wall 24, total natural electron yield coefficient σ of the support material is relatively low, normally no more than 2.0, preferably no more than 1.6. For this purpose, the support material is typically an oxide of metal such as chromium or/and neodymium. The further particles ~~material~~ typically consist ~~consists~~ of organic material such as latex or/and polystyrene.

Page 76, amend the paragraph beginning at line 19 as follows:

The removal of part or (largely) all of particles 174 from thin-film composites 178 and 180 acts to roughen their exterior faces, thereby converting composites 178 and 180 respectively into rough layers 134 and 136. An etching operation is typically employed to perform the particle removal. The etching operation can be done with a plasma, according to a reactive-ion etch technique, chemically, electrochemically, or using two or more of these etching techniques. Depending on the characteristics of particles 174 relative to support material 182, particles 174 may also be removed by bombarding them with an ion beam. When particles 174 ~~particles 74~~ consist of organic material, pyrolysis may be performed in an oxidizing environment to remove particles 174. The pyrolysis temperature is 200 - 900°C, typically 400°C - 600°C. Should the thickness of each of composites 178 and 180 be in the vicinity of 1 μm or less, the pyrolysis temperature can readily be lowered to as little as 250°C.

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Page 87, amend the paragraph beginning at line 26 as follows:

Metal layers 220 and 222 are then anodically oxidized to convert them into porous layers that respectively implement rough layers 134 and 136. See Fig. ~~Figs.~~ 17c. With the metal being aluminum, techniques for performing the anodic oxidation are described in Furneaux et al, "The formation of controlled-porosity membranes from anodically oxidized aluminum," *Letters to Nature*, ~~Letters to Nature,~~ Vol. 337, 12 January 1989, pages 147 - 149. The contents of Furneaux et al are incorporated by reference herein.

Page 89, amend the paragraph beginning at line 22 as follows:

The process sequence of Fig. 18 begins with "core substrate 132" as specified for the process sequence of Fig. 13. An upper-face portion of core substrate 132 is depicted in Fig. 18a. Although the lower face of core substrate 132 is not shown in Fig. 18, ~~Fig. 15,~~ steps largely identical to those performed along the upper face of core substrate 132 are performed along its lower face.

Page 90, amend the paragraph beginning at line 29 as follows:

Particles 242 may, or may not, be removed. If particles 242 remain in place and if conformal coating 138 is not to be provided over rough layer 134 in the process sequence of Fig. 18, each pillar 242/244 constitutes one of pillars 88. The structure of Fig. 18d ~~Fig. 18e~~ implements main wall 46 in Figs. 3k, 4g, and 11b. If coating 138 is to be provided over layer 134 with particles 242 remaining in place, the structure appears as shown in Fig. 18e ~~Fig. 18f~~ after providing coating 138. Each pillar 242/244 and the overlying part of coating 138 form one of pillars 88. The structure of Fig. 18e ~~Fig. 18f~~ implements wall 46 in Figs. 3k, 4g, and 11d.

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